

THE INSTRUCTOR: Milton L. Godfrey is a C-E-I-R, INC., senior operations research analyst with broad experience in the practical uses of scientific techniques in industry. In his current assignment at the C-E-I-R



Research and Computing Center in New York, Godfrey is responsible for a wide variety of operations research projects, mathematical analyses, information systems, and econometric studies. Before

he joined C-E-I-R's professional staff he served in various management capacities with Talon, Inc., and Chase Aircraft, and as a consultant for leading organizations. He is a registered professional engineer and author of several papers on applications of linear programming.



REGISTRATION: Tuition, including computer processing of the student exercise, noon meals, and course materials, is \$195 for the first student and \$175 for each additional student from the same organization. Classes begin each day at 9 a.m. and continue through 5 p.m. Hotel rooms are not included.

HOTEL ACCOMMODATIONS: The seminar will be at the Park-Sheraton Hotel, 870 Seventh Avenue (between 55th and 56th Streets) in New York City. The hotel is holding a block of rooms for registrants through November 19, eleven days prior to the seminar. Free parking is provided for hotel guests.

OTHER COURSES: The Institute for Advanced Technology program covers many subjects in the field of data processing and the management sciences. Among the seminars currently scheduled are:

LINEAR PROGRAMMING: Industrial applications of a powerful Operations Research tool. New York City, December 7-8.

PROGRAMMING LANGUAGES: Surveys common languages with emphasis on COBOL and PL/1. Washington, D. C. November 16-18.

For an outline of these or other courses in the IAT program, write:

Registrar
Institute for Advanced Technology
C-E-I-R, INC.
1200 Jefferson Davis Highway
Arlington, Virginia 22202
Phone: Area Code 703/684-6377

Business Forecasting

A three-day Management
Seminar

November 30-December 1-2
Park-Sheraton Hotel
New York City

A survey of scientific forecasting techniques and their business uses, with emphasis on applications in marketing. Intended for management personnel with a need to understand what forecasting methods are available to them, how they work, and their advantages and disadvantages. Students should be familiar with algebra at the high school level. Each student should bring a set of data such as sales, production or inventory records relevant to his interest. This will be processed on an IBM 7094 computer as a class exercise, using the C-E-I-R Time Series Analysis and Spectral Analysis programs, two important forecasting tools.

C-E-I-R^{INC}
Institute for Advanced Technology
1200 Jefferson Davis Highway
Arlington, Virginia 22202

BUSINESS FORECASTING

Course Outline

The Use of Forecasts

- Short range
- Long range

Components of Time Series

Reliability of Forecasts

- Forecast bias
- Forecast variance

Assumptions Made in Forecasting

- Forecasting aggregates
- Forecasting details

Forecasting Models

Analyzing Historic Data

- Time series analysis
- Autocorrelation analysis
- Regression analysis
- Spectral analysis
- Markov analysis

Economic Indicators

- What they are
- How they are used

Forecasting Models for Short Range Control

- Moving average
- Exponentially smoothed
- Regressive
- Function matching: highly seasonal products
- Coping with promotional sales policies

Forecasting Models for Long Range Planning

- Trend projections
- Component projections
- Corrections for economic conditions
- Sales quotas and self-fulfilling prophecies
- Econometric models
 - Input/output
 - Linear programs
 - Simultaneous equations
- Gaming models

Forecasting as Part of an Operating System

- Open loop operation
- Closed loop operation
- Stability
- System performance

Use of Simulation of Operating Systems

- Simulation language
- Time related systems
- Event related systems
- Simulation concepts
- Simulation analysis

Market Testing as a Basis for Forecasting

- Design of the test
- Analysis of the test

General Discussion

STUDENT EXERCISE: Each student is invited to submit in advance of the seminar a set of data relevant to his own problems or interests. This data will be processed on an IBM 7094 at the C-E-I-R, INC., computing center using both the C-E-I-R Time Series Analysis and Spectral Analysis programs, to illustrate use of two important forecasting tools.

The set of data should relate to a single element, such as sales of one product, or units of production or inventory, and should be set up on a monthly basis. For a useful analysis, this historic data should cover approximately five years (60 months).

Students may submit either actual or hypothetical data. The result of computer processing will be a useful and meaningful data analysis in itself, as well as a reinforcement of the learning process.

Simple and detailed instructions for preparing student data and the required forms will be forwarded to students with confirmation of their registration.

C-E-I-R^{INC} is an international applied research and data processing corporation that offers analytical, scientific and computer services to business, science and government. Founded in 1954, it is today the world's largest, most experienced and best equipped independent organization in its field. The C-E-I-R professional staff includes several hundred mathematicians, statisticians, economists, operations researchers, management scientists and others from a variety of disciplines. In addition, many of the finest scientific and professional men in America are retained on a consultant basis. Augmenting this professional capability are modern electronic computing equipment, and skilled computer programmers and operations personnel at computing centers in five major U.S. cities, London, The Hague and Mexico City.

BUSINESS FORECASTING

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Park-Sheraton Hotel

New York, N. Y.

November 30 – December 1-2

Register me for: BUSINESS FORECASTING ☐

NAME: _____

TITLE: _____

COMPANY: _____

ADDRESS: _____

Please Register This Additional Student:

NAME: _____

TITLE: _____

CHECK ENCLOSED ☐

Bill My Company ☐

BUSINESS REPLY MAIL

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

FIRST CLASS
PERMIT NO. 35700
WASHINGTON, D.C.

**Registrar
Institute for Advanced Technology
C-E-I-R, Inc,**

**1200 Jefferson Davis Highway,
Arlington, Virginia**

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HOW MUCH

IS A BETTER

FORECAST WORTH?

Dear Sir:

If your responsibility involves making or using business forecasts you should consider attending this unusual seminar. It combines a thorough analysis of available scientific forecasting techniques and their applications with actual computer processing of data from your own desk.

The seminar is taught by Milton L. Godfrey, an experienced instructor and a veteran management sciences consultant from C-E-I-R's New York research center. His presentation is in layman's language, intended for the manager whose concern is with the end result, rather than the niceties along the way. For maximum benefit from his course you will, however, need the equivalent of a good high school course in algebra -- but you will not be overwhelmed with mathematical detail.

During his three-day presentation at the Park-Sheraton Hotel in New York, November 30 and December 1 and 2, Godfrey will introduce you to the major forecasting techniques and tell you their strengths and weaknesses, their information requirements, and situations where each method is used to its best advantage.

As indicated in the enclosed outline, the seminar covers forecasting reliability, necessary assumptions, design considerations, models for both short- and long-term control, and other important elements of the forecasting trade.

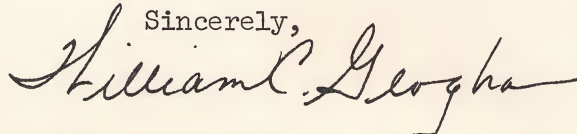
As a seminar participant you will have an opportunity to submit data from your own operation, and you will be given the results after this data is processed on a powerful IBM 7094 computer, using both the time series analysis and spectral analysis programs.

Your material for this class exercise may be real or hypothetical, and should include monthly figures for at least a five-year period concerning a single product's sales, or its production, inventory or some other activity. Before the seminar you will be sent detailed instructions concerning this feature of the seminar.

This class exercise, included in the seminar at no extra cost, is in itself of considerable value both from the standpoint of computer time consumed and that of the analysis of your data.

The major value of this seminar, however, goes beyond the analysis of your information. The business forecast is the basis for management decisions and capital expenditures of many kinds. Through this seminar you will get a better understanding of the business forecast, and learn how to achieve increased accuracy, scope and reliability in forecasting that substantially improve the quality -- and profitability -- of business decisions and investments.

Sincerely,



William C. Geoghan
Director of Curriculum

P.S. Early registration is encouraged in order to allow you maximum time for choice of your subject for the class exercise and preparation of information for your free time series analysis and spectral analysis.